Instructor: Jay Rosenberger

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Office Hours: Woolf 420-D, Mon 11:00 AM – 11:50 AM; ELB 309, Tue 9:00 AM – 11:00 AM

Section Information: IE 6303-001/002/003

Time and Place of Class Meetings: GACB 105, MWF 10:00 AM -10:50 AM

Description of Course Content: A survey of problems and algorithms in combinatorial optimization. Topics include integer programming formulation, branch-and-bound and cutting plane algorithms, polyhedral theory, Lagrangian relaxation, and Benders’ decomposition.

Student Learning Outcomes: At the end of this course students should be able (1) to understand the basic concepts of integer programming, (2) to apply those concepts to solving numerical problems, and (3) to use some software to solve integer programs.

Supplemental Textbooks: Integer and Combinatorial Optimization by Nemhauser and Wolsey.

Mailbox: IMSE Department P.O. Box 19017

GTA: Antonio Alanis Pena (antonio.alanispена@mavs.uta.edu)

GTA Office Hours: ELB 308, Fridays 12:30 PM – 2:00 PM

Descriptions of major assignments and examinations: There are two midterm exams, homework assignments, and a group project. Midterm 1 is on integer programming formulation. Midterm 2 is branch-and-bound and cutting plane algorithms. The group project will be assigned after the second midterm and will include both a written report and an oral presentation.

Prerequisites: IE 5301 (Introduction to Operations Research) or equivalent.

Test Policies:

- **Before exam:** Students are allowed to use 4 (8.5 * 11 inch front and back) pages of notes, and students must bring a UTA I.D. card and a calculator with them to the exam. Students are not allowed to leave the exam room and return to take the test, so students should use the restroom before the exam. The instructor will provide a seating chart for the exam. Students should sit in their assigned seats and clear the desk area of all materials except: pens, pencils, erasers, calculators, and 4 pages of notes.

- **During an exam:** Students are only allowed to use pens, pencils, erasers, calculators, and notes. Mobile phones, computers, and other communication devices must be turned off. Students should keep their eyes on their own exams. Doing otherwise constitutes evidence of scholastic dishonesty for which the instructor can refer you to the Office of Student Conduct. Students are not allowed to leave the exam room and return to take the test. Exams are to be opened and closed at the times announced in class (or by the proctor). Anyone opening an exam early or
closing an exam late will be deducted 5 points for each minute outside the exam period. All suspicious behavior during the exam will be noted by the instructor. In certain circumstances, students will be confronted by the instructor and could be referred to the Office of Student Conduct.

- **After an exam:** When all of the exams have been graded, the GTA will email scores to the students. The exams will be reviewed in class. Students who wish to see their graded exams must come to office hours. Students who wish to keep a copy of their exams must come to office hours and remove the exam staple, so the exam can be copied. The instructor highly encourages students who perform poorly on exams to come during office hours.

**Attendance:** At the University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I have established following attendance policy: I allow students to attend class at their own discretion. However, watching the video or attending classes is part of a student’s homework grade, and the instructor strongly encourages students to attend classes.

**Homework & Lecture Mastery:** Students are required to master the materials presented in class. To ensure students are paying attention to the lectures and mastering material, the instructor will announce a homework assignment in roughly one class per week and will announce a lecture code in other classes. For each class, each student is asked to submit the following statement:

*I certify that I have either attended class or watched the video for the lecture on [date of lecture] and have mastered the material. Without assistance, I could summarize the lecture content and reproduce the example problems.*

For classes that include a homework assignment, the student will include his/her homework solution with the following statement:

*My solution to the homework problem is as follows: [Homework solution.]*

Students are encouraged to work together on homework assignments. All forms of collaboration should be documented on the submitted homework assignment. Specifically, students should include the following statement:

*For this assignment, I worked with [collaborators’ names]*

For classes that include a lecture code, the student will include the following statement:

*The lecture code is [lecture code].*

Homework and lecture codes should be submitted via Blackboard by either 9:00 AM on the date of the third subsequent lecture (usually one week) or 9:00 AM on the date of the first lecture after census date, whichever date is later. Blackboard shuts down the assignment afterwards, so **all homework submitted after the due date and time will not be given credit.** The percentage of lecture codes submitted will be scaled to 5% and added to your class score. Homework and lecture codes may only be graded if they can help a student’s overall class grade.

**Class Courtesy:** The instructor insists on a quiet classroom. This includes silencing cell phones before class and no whispering during class. Texting in class is fine but not during exams. Students who come to class late should try to enter the classroom as discreetly as possible. Due to noise in the hallway, the hallway door, which may be locked, may be shut 10 minutes after class begins. Students who do not come to class within the first 10 minutes of the start of class may not be able to attend class. In this case, the student should watch the recorded video. **Do not knock on the door if it has already been shut. Students who are disruptive in class will be asked to leave.**
Grading: Grading Format: A = 90, B = 80, C = 65, D = 55, F = below 55. Exams are curved as described below, but homework is not curved. The grade weights are as follows:

- Midterm exam 1 is 25%
- Midterm exam 2 is 25%
- Written group project is 20%
- Oral group project is 10%
- Homework is 15%
- Lecture mastery is 5%

There is no other course credit available, and students frequently regret not submitting all homework and lecture mastery codes.

Each exam receives a raw score based upon performance on problems and the point allocations described on the exam. Usually these points total 100 but sometimes there are bonus points. Using the average and standard deviation of the raw scores, each exam receives a preliminary curved score based upon a predetermined bell curve. Usually, the predetermined bell curve has a mean of 85 and a standard deviation of 5. Finally, each exam receives a curved score that is the maximum of the raw score and the preliminary curved score. An exam's curved score is what is used to determine the final class grade. The GTA will email exam scores as soon as exam scores have been curved.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Make-up Exams: Makeup tests will only be given for documented illnesses or emergencies. If you cannot attend a test for any reason, you should make every effort to contact me beforehand.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law “Title IX” such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation
in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

> I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

> I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents’ Rule 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. For more on academic integrity, see [http://www.uta.edu/engineering/current-students/academic-honesty.php](http://www.uta.edu/engineering/current-students/academic-honesty.php).

**Instructor Comments on Scholastic Dishonesty:** While not on the standard syllabus, recent events have compelled the instructor to warn students about scholastic dishonesty. Please read all 5 points below that include a description of what will happen if the instructor finds evidence that a student has cheated, colluded, or plagiarized in any way on submitted materials in this class.

1. The instructor will submit a referral to the Office of Student Conduct with the intention of reducing that submitted material grade to 0, which will likely lower the student's final grade in the class. **The instructor will not accept any excuse, plea, apology, or justification for the student's actions.** Any question about cheating, colluding, or plagiarism should be discussed with the instructor before submitting the materials.
2. More than likely the Office of Student Conduct will agree with the instructor's conclusion and allow him to make the grade change. If the student is not already on Scholastic Dishonesty Probation, the Office of Student Conduct will almost certainly put him/her on probation. If the student is already on Scholastic Dishonesty Probation, the University will likely dismiss the student from the University.
3. The low final grade received in the class may require the student to retake this class or take another class in a subsequent semester to fulfill graduation requirements, which could delay graduation.
4. The low final grade received in the class may put the student on Academic Probation if s/he is not already on Academic Probation. Academic Probation can lead to the student being dismissed from the IMSE Program.
5. Scholastic Dishonesty and/or Academic Probation ensure that the student cannot have a Graduate Teaching Assistantship (GTA). In addition, although this is not a formal policy, there has been no case in which a student who was previously on either Scholastic Dishonesty Probation or Academic Probation was offered a GTA or any IMSE scholarship or award.

Although the above may sound severe, the instructor, the IMSE Department, and the University take scholastic dishonesty extremely seriously. For more on UTA's Scholastic Dishonesty Policy, please see the following link:

[https://www.uta.edu/conduct/faculty/suspected-dishonesty.php](https://www.uta.edu/conduct/faculty/suspected-dishonesty.php)

Let’s try to make this a successful honest class.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and
information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located across the hallway through the double doors on the right. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Website: Blackboard (http://elearn.uta.edu)

Blackboard Help: Richard Zercher; Email: zercher@uta.edu

Echo 360 Help: For problems viewing ClassRev (Echo360) recordings contact classroomsupport@uta.edu.

Distance Student Test Policies: Exams must be taken with 24 hours of the regularly scheduled exam. Students who live within 50 miles of campus must come to campus to take all exams. Students should make every effort to take exams on-campus during the regularly scheduled time. If this is not possible, alternate exam times may be scheduled. Students living more than 50 miles from campus may take the exam with an approved proctor. Students will be responsible for identifying a proctor. Proctors must be approved by the faculty at least two weeks before the first exam. Distance testing must follow all the College of Engineering guidelines, located at http://www.uta.edu/engineering/future-students/engineering-online/proctor-information.php.

Distance Student Contact and Assignment Policies: Distance students are required to communicate with the faculty before the second class period. Distance students are expected to complete all of the
regular requirements for a class. This includes submission of homework by the same due date and time as those of the in-class students via Blackboard.

**Course Schedule:** TBD

*The instructor for this course reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.*